AllFusion™ Endevor® Change Manager

CA Common Services CA-L-Serv Technical Bulletin 4.0

Computer Associates™

ENLSR400

First Edition, December 2002

Contents

Chapter 1. Installing CA-L-Serv to Manage Endevor VSAM Files

1.1 Purpose of this Document

This Technical Bulletin is intended to provide additional detailed information about how to implement CA Common Services CA-L-Serv (or simply L-Serv) in conjunction with AllFusion Endevor Change Manager (referred to in this guide simply as Endevor). L-Serv manages and improves the access performance against Endevor's VSAM Master Control File (MCF), Package Dataset, and Endevor-Lib (VSAM) datasets.

1.1.1 Who to Contact?

For all questions pertaining to the implementation of L-Serv in conjunction with the Endevor product, please contact your local Computer Associates Endevor Technical Support.

1.2 L-Serv and Endevor

L-Serv is a master-started task that provides standard services used by many Computer Associates products. Use of L-Serv services is restricted to Computer Associates products.

L-Serv's standard services include:

- File and SQL table management
- Cross-system communications
- Automatic job scheduling
- Centralized logging facilities
- Centralized message service facilities

For the purpose of managing Endevor's VSAM files, we will be utilizing the File management portion of L-Serv and (for multi-CPU access) the Cross-system communication component.

It is important to review L-Serv's system installation requirements documented in the *CA Common Services CA-L-Serv Installation and Configuration Guide* before proceeding with this implementation. It is also important to determine if L-Serv is already installed at your site in conjunction with another Computer Associates product. You may need to install an additional copy of L-Serv to meet Endevor's needs. Guidelines for determining how many copies of L-Serv to run are documented in the *CA Common Services CA-L-Serv Installation and Configuration Guide*. If L-Serv is not currently active, Endevor will require only one per CPU/LPAR.

1.3 Security Under L-Serv

The Master Control File (MCF), Package data set (PCF), and Endevor-Lib VSAM are data sets that, under the normal processing of Endevor, would revert to being opened under the context of the CA-Endevor Alternate ID (see the *Security Guide*). When L-Serv is actively managing these data sets, opens for the MCF and PCF will be performed under the context of the Endevor Alternate ID; however, at this time, opens for Endevor LIB VSAM data sets will be performed under the context of L-Serv, and not the Endevor Alternate ID.

Security packages will recognize the L-Serv User as the name of the L-Serv task that is running. In the case of program pathing, programs LDMMAIN (Main L-Serv Task) and LDMFSRV (subtask VSAM driver) will need to be pathed.

Note for Alternate ID Users: When the Alternate ID trace is activated, no activity will be displayed for data sets under L-Serv's control since it is no longer Endevor that performs the opens.

1.3.1 Security Enhancements

Release 3.5 of L-Serv introduced two major security enhancements:

- Before a requester is allowed to open a dataset via L-Serv, external security is invoked to verify that the user has the required level of authority to have L-Serv open the dataset on the user's behalf. This is done by checking the user's access against the dataset via the new $LSRVDSN resource class.
- Before L-Serv is allowed to open a dataset placed under its control by an ADDFILE command, external security is invoked to verify that the userid under which L-Serv is running has the required authority to open the dataset.

Security definitions previously implemented for Endevor need not be altered. The security checks made by Endevor will still function in exactly the same manner. For more information on $LSRVDSN, see Chapter 4 of the *CA-L-Serv Installation Guide*.

1.4 Steps for Implementing L-Serv

The following steps are required to implement L-Serv in conjunction with Endevor:

1. Install the base L-Serv product for each required CPU/LPAR.
2. Set up L-Serv to use the file server.
3. Set up L-Serv to use the communication server (optional).
4. Alter the VSAM attributes for Endevor's MCF and Package datasets.
5. Modify your dataset reorganization jobs for MCF and Package datasets.
6. Maintain files under the control of L-Serv.
7. Monitor L-Serv's performance.

Each of these steps is described in detail in the following sections.

1.5 Step 1: Installing the Base L-Serv Product for Each Required CPU/LPAR

1.5.1 Installation Guidelines

Steps for installing L-Serv are outlined in the *CA Common Services CA-L-Serv Installation and Configuration Guide*. When installing L-Serv, please consider any other copies of L-Serv that may be running at your site. Only one copy per system is required unless you are installing a test version or the workload becomes too great for the existing server. When you run multiple copies of L-Serv per system, be sure to use unique subsystem and start-up procedures. (See the section, Identifying L-Serv to Endevor Clients, for more information.)

1.5.2 Authorization Requirements

L-Serv's load modules must reside in an authorized load library. You can use any load library that has been assigned to the authorized program facility (APF). This library can be the same one that is allocated for Endevor.

1.5.3 L-Serv Start-up Procedure

A start-up procedure is automatically generated from the installation job. This should be compared with the example shown in the manual to verify the values that you entered and what L-Serv assigned. We will be discussing the building of the actual input parameters in the following sections of this document.

Note: You must start L-Serv before you start a Endevor session once the product's VSAM SHR options for the MCF and Package datasets have been reverted to (1 3). Otherwise, Endevor will terminate prematurely with an error message stating that the shareoption value for the MCF and/or Package data set requires L-Serv availability.

1.6 Step 2: Setting Up L-Serv to Use the File Server

Although there are many options available for customizing and operating L-Serv, this document is concerned with the basic required settings needed to operate L-Serv in conjunction with Endevor. See the *CA Common Services CA-L-Serv Installation and Configuration Guide* for more information about additional options provided with L-Serv.

1.6.1 Defining ADDFILE and ADDPOOL Statements

For each file that you elect to manage, the appropriate ADDFILE and optionally ADDPOOL statements must be coded.

ADDPOOL statements allow for the allocation of Local Shared Resource (LSR) buffer pools. These pools can be shared by files with similar buffer characteristics. Example 1 shows how to associate independent LSR pools with each group of Endevor files that is being managed. It also shows how the ADDFILE command points to assigned 1, 2, and 3.

1.6.1.1 Recommendation

Computer Associates recommends using the LSR buffer pools while utilizing L-Serv to improve the access performance against Endevor's MCF, Package, and E-Lib VSAM files.

The Buffer size, and number of buffers correspond respectively to the Data Component Control Interval (CI) size of the file and the number of pools you want to assign to each. In Example 1, the MCF and Package datasets have a CI size of 8192 and the E-Lib files have a CI size of 4096.

Note: The number of buffers can affect system performance. If there are not enough buffers allocated, delays occur while servicing I/O requests. However, if too many buffers are allocated, virtual storage is wasted.

ADDFILE statements are required for each file that you wish to manage. Each command requires that a DDNAME be specified. If this is not specified in L-Serv's start-up procedure, you must specify the DSNAME in the ADDFILE statements (recommended approach).

Place these statements as a member in the L-Serv parameter dataset (//LDMCMND). In this case, we suggest using a member name of NDVRPARM. See Example 2 for an illustration of the dynamic call to this member at start-up of the server.

1.6.1.2 Example 1: Sample ADDPOOL and ADDFILE Syntax

The following is a sample of ADDPOOL and ADDFILE syntax used to define Endevor MCF, PACKAGE and E-Lib VSAM Base/Delta files to L-Serv.

```
*********************************************************
**  MASTER CONTROL FILE
*********************************************************
ADDPOOL  1 (8192,20)
   ADDFILE MCF1 uprfx.uqual.STAGE1,POOL= 1
   ADDFILE MCF2 uprfx.uqual.STAGE2,POOL= 1
*********************************************************
**  PACKAGE DATASET
*********************************************************
ADDPOOL  2 (8192,20)
   ADDFILE PKG1 uprfx.uqual.PACKAGE,POOL=2
*********************************************************
**  ENDEVOR-LIB VSAM BASE/DELTA
*********************************************************
ADDPOOL  3 (4096,20)
   ADDFILE BASE1 uprfx.uqual.ELIB.BASE,POOL=3
   ADDFILE DELT1 uprfx.uqual.ELIB.DELTA,POOL=3
```

1.6.2 Identifying L-Serv to Endevor Clients

L-Serv must be identified by subsystem name to Endevor. The default subsystem name is LSRV, which does not require modification to skeleton members. However, if you install L-Serv under a different subsystem name, or have multiple L-Serv subsystem that require Endevor to use a specific subsystem, you must reference the new name as follows:

- For Batch execution, add the following DDNAME to skeleton members C1SB3000, BC1GJCL1, C1SR8100, C1SSPR90, and any JCL members that access Endevor contained in your iprfx.iqual.ISPSLIB or iprfx.iqual.JCL libraries to add the following DDNAME:

  ```
  //SSN$ssname  DD DUMMY
  ```

  where *ssname* is the name of the L-Serv subsystem.

- For TSO, add the following statement to your Logon CLIST:

  ```
  ALLOC F(SSN$ssname) DUMMY REUSE
  ```

  where *ssname* is the name of L-Serv subsystem.

1.7 Step 3: Setting Up L-Serv to Use the Communications Server (Optional)

1.7.1 Single CPU/LPAR Environment

When using L-Serv, only a host file server can own Endevor's files. In a single CPU/LPAR environment, only one L-SERV is required. This is the server that will perform all I/O against a set of managed Endevor files. There are no cross-communication issues in this configuration.

1.7.1.1 Example 2: Defining a Single L-Serv File Server

Below is a sample ATTACH command to define a single L-Serv file server.

```
ATTACH  FILESERVER
INCLUDE NDVRPARM
```

Place this file as member LDMPARM (the L-Serv start-up command) in the L-Serv parameter dataset (//LDMCMND). Notice that we have coded an INCLUDE statement for member NDVRPARM which contains the appropriate ADDPOOL and ADDFILE syntax for the files we wish to manage.

1.7.2 Multi CPU/LPAR Environment

In multi CPU/LPAR configurations, additional slave servers must be defined which do not perform I/O operations. The requests are routed to the appropriate host L-Serv based on where they are directed in the L-Serv ATTACH parameter. It is important to note that REMOTE access is slower than HOST access. Because of this, it is important to define the host L-Serv on the CPU/LPAR where Endevor is running. Each of the servers that you set up in this mode require the L-Serv Communications Server to be activated. This involves:

- Defining L-Serv to VTAM. (See your VTAM System Programmer for assistance.)
- Choosing a communication protocol. The default is LU0. The preferred protocol is LU62.
- Starting and stopping the communications server (ATTACH COMMSERVER and ACTIVATE commands)
- Testing cross-system data transmission
- Managing incoming and outgoing data

When configuring additional servers in this way, it is best to initially accept the system defaults. Modifications should be made using the L-Serv statistics after implementation.

Note: Before proceeding it must be recognized that any implementation involving cross-CPU communication will incur the additional overhead of this process. This involves transmission time, maintenance, back-up and recovery if a host server is disabled.

1.7.3 Defining the Communication Server

The following is an example of the use of IFSYS logic to conditionally ATTACH and ACTIVATE the Communications server. The ACBNAME must match the application ID on VTAM's APPL statement for L-Serv.

We have opted to use all of the L-Serv system defaults except the RECBUFFSIZE parameter. Here are some general guidelines for setting this parameter value:

- If managing only Master Control Files (MCF) and Package datasets, set this parameter to 1K, which is the size of the largest VSAM record in these files.
- If managing VSAM Endevor-Lib files (with or without MCF or Package), set this parameter to the blocksize of the largest E-Lib file being managed. Normally this is 4K.

Note to Point In Time Recovery (PITR) Users: If PITR is active, set this parameter to 16K. Endevor internally blocks up all non-VSAM Base/Delta records before writing in 16K intervals to the journal files.

When defining the ACTIVATE command in a cross-communication scenario, the L-Servs must point to each other. For example, System 008 points to System 028 (LDMSJ28), and System 028 points to System 008 (LDMSJ08).

In addition, we have also specified the ATTACH FILESERVER command to start the file server portion of L-Serv defining a route between systems 008 and 028. In this case System 008 is defined as the host system, or the owner that will perform all I/O activities on a set of managed files, while System 028 is being defined as Remote or the slave server that will not perform any direct I/O.

Place this file as member LDMPARM (the L-Serv start-up command) in the L-Serv parameter dataset (//LDMCMND). Notice that we have coded an INCLUDE statement for member NDVRPARM which contains the appropriate ADDPOOL and ADDFILE syntax for the files we wish to manage.

Note: The INCLUDE for member NDVRPARM must be defined to the host L-Serv that will own the files (System 008 in this example).

1.7.3.1 Example 3: Defining a Two-System L-Serv File Server Configuration

Below is a sample ATTACH and ACTIVATE commands to define a two system L-Serv File Server configuration.

```
OPTION SVCDUMP(YES)
    ADDLOG TRACE SYSOUT(X)
*
IFSYS S008
    ATTACH   COMMSERVER ACBNAME=LDMSJ08,
             HOLDBUF=10,
             SENDLIMIT=10,
             RECBUFFSIZE=4K,
             MAXSESSIONS=32,
             MAXSENDSIZE=32,
             CONTYPE=LU0,
             RETRY=30,
             RETRMAX=5,
             LOG=MSGLOG
    ACTIVATE LDMSJ28 CONTYPE=LU0,
             RETRY=30,
             RETRMAX=5
    ATTACH   FILESERVER,SERVERTYPE=HOST
    INCLUDE NDVRPARM
ENDIF
*
IFSYS S028
    ATTACH   COMMSERVER ACBNAME=LDMSJ28,
             HOLDBUF=10,
             SENDLIMIT=10,
             RECBUFFSIZE=4K,
             MAXSESSIONS=32,
             MAXSENDSIZE=32,
             CONTYPE=LU0,
             RETRY=30,
             RETRMAX=5,
             LOG=MSGLOG
    ACTIVATE LDMSJ08 CONTYPE=LU0,
             RETRY=30,
             RETRMAX=5
    ATTACH FILESERVER,SERVERTYPE=REMOTE
*
ENDIF
```

1.7.4 Testing Cross-system Data Transmission

Before using the L-Serv cross-system communication system with Endevor, the link should be tested. You can use the L-Serv LDMAMS utility to accomplish this task (see the *CA Common Services CA-L-Serv File Server Guide*).

1.7.5 Handling L-Serv's ENQ Requests

To control access to files that you put under L-Serv's management, L-Serv issues ENQ requests against the queue name LSERVDSN. In a multi system environment, these requests must be propagated globally. (If you are using a product that provides this service, such as Computer Associates Multi-image Manager, see the *CA Common Services CA-L-Serv Installation and Configuration Guide*.)

Note for MIM Users: If you are using PROCESS=SELECT, the LSERVDSN name must be added to the QUEUE name list with SCOPE=SYSTEMS. If you are using PROCESS=ALLSYSTEMS, L-Serv propagates the enqueue automatically.

1.7.6 Using the Communication Server in Lieu of Shared DASD

Through the use of the Communication Server, L-Serv allows you to access Endevor files owned by a host system which reside on DASD that are not shared by the remote CPU. When this situation is present, you will be required to allocate dummy Master Control Files, Package and Endevor-Lib datasets in order to satisfy Endevor's requirement on the remote site to allocate the files before the product can search to determine if L-Serv is active (these files will never be physically opened).

These files must exactly match the names of the datasets specified in the Customer Defaults table (MCF and Package) or Type definitions (E-Lib) for the Endevor environment that you will be accessing on the remote system. For the MCF and Package datasets, they should be allocated as one Track sequential files, rather than the standard VSAM files, to insure against their use if L-Serv is not active on the remote site. The allocation of these files as sequential datasets protects the product from running locally and from using the dummy datasets as though they were the real MCF and Package.

For E-Lib datasets, one track VSAM files need to be allocated in order for them to be recognized as Endevor-Lib. These files should be allocated, but not initialized in order to protect from the same potential problem noted above.

1.7.6.1 Example 4: Allocating Dummy Files

This is an example of a job that can be run to allocate the dummy MCF, Package, and E-Lib files.

```
//*(JOBNAME)
//STEP1  EXEC PGM=IEFBR14
//SYSPRINT  DD SYSOUT=*
//MCF1  DD DSN=uprfx.uqual.MCF1,DISP=(,CATLG,DELETE),
//      UNIT=SYSDA,SPACE=(TRK,(1,1),RLSE)
//MCF2  DD DSN=uprfx.uqual.MCF2,DISP=(,CATLG,DELETE),
//      UNIT=SYSDA,SPACE=(TRK,(1,1),RLSE)
//PKG1  DD DSN=uprfx.uqual.PACKAGE,
//      DISP=(,CATLG,DELETE),
//      UNIT=SYSDA,SPACE=(TRK,(1,1),RLSE)
//STEP2  EXEC PGM=IDCAMS
//SYSPRINT  DD SYSOUT=*
//SYSIN DD *
  DEFINE CLUSTER -
   (NAME(uprfx.uqual.ELIB.BASE) -
   RECORDSIZE(4088 4088) -
   CONTROLINTERVALSIZE(4096) -
   SHAREOPTIONS(3 3) -
   TRACKS(1 1) -
   NONINDEXED)
  DATA (NAME(uprfx.uqual.ELIB.BASE)
  DEFINE CLUSTER -
   (NAME(uprfx.uqual.ELIB.DELTA) -
   RECORDSIZE(4088 4088) -
   CONTROLINTERVALSIZE(4096) -
   SHAREOPTIONS(3 3) -
   TRACKS(1 1) -
   NONINDEXED)
  DATA (NAME(uprfx.uqual.ELIB.DELTA)
```

1.8 Step 4: Altering the VSAM Attributes

1.8.1 Alter Attributes

Job BC1JLSRV has been supplied in your iprfx.iqual.JCLLIB library, and is intended to ALTER the SHR attributes of the Master Control File (MCF), Package, and Endevor-Lib datasets from SHR (3 3) to SHR (1 3). Once you have L-Serv properly installed, run this job to alter these files as noted above. You must modify the attributes of these files to gain any performance improvements that you would expect from this implementation.

Note: You must have L-Serv properly activated before altering the SHR options of these files. Otherwise, Endevor actions will fail until L-Serv is either properly activated or the SHR options are changed back to (3 3).

Note: For users running external programs that allow read-only access to MCF and Package datasets, SHR options of (2 3) may be specified for concurrent access. Please note that when operating in this mode, sequence errors may occur as the result of reading a recently updated file. These errors mean the retrieval job must be restarted.

Note: The performance of L-Serv using SHR (2 3) is not as good as the SHR (1 3) defaults because VSAM continues to enforce additional management on the files.

1.8.1.1 Example 5: ALTER Syntax

Below is an example of ALTER syntax to IDCAMS utility to modify SHR options (BC1JLSRV):

```
//STEP1    EXEC PGM=IDCAMS,REGION=2048K
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 ALTER 'uprfx.uqual.STAGE1.DATA' SHR(1 3)
 ALTER 'uprfx.uqual.STAGE1.INDEX' SHR(1 3)
 ALTER 'uprfx.uqual.STAGE2.DATA' SHR(1 3)
 ALTER 'uprfx.uqual.STAGE2.INDEX' SHR(1 3)
 ALTER 'uprfx.uqual.PACKAGE.DATA' SHR(1 3)
 ALTER 'uprfx.uqual.PACKAGE.INDEX' SHR(1 3)
 ALTER 'uprfx.uqual.ELIB.BASE.DATA' SHR(1 3)
 ALTER 'uprfx.uqual.ELIB.BASE.INDEX' SHR(1 3)
 ALTER 'uprfx.uqual.ELIB.DELTA.DATA' SHR(1 3)
 ALTER 'uprfx.uqual.ELIB.DELTA.INDEX' SHR(1 3)
```

1.8.2 Enable L-Serv Compress

In order for the L-Serv compress feature to be utilized for the MCF and Package datasets only, additional VSAM attributes need to be modified. In this case, rather than executing job BC1JLSRV, execute jobs BC1JRMCF and BC1JRPKG to back-up, delete, reallocate, and copy the MCF and Package datasets. These jobs need to be run selecting the proper steps for execution. See Appendix A, "JCL Member BC1JRMCF,"

and Appendix B, "JCL Member BC1JRPKG," for sample JCL. Note that datasets are currently allocated with the REUSE option.

1.9 Step 5: Modifying Your Dataset Allocation and Reorganization Jobs

Modify jobs BC1JJB04, BC1JJB05 (allocate) and BC1JRMCF, BC1JRPKG (reorganize). These jobs are in your iprfx.iqual.JCLLIB library. They are supplied to allocate and periodically re-organize your Master Control Files (MCF) and Package dataset respectively. Comments in BC1JRMCF and BC1JRPKG indicate which steps are placed under the control of L-Serv. See Appendix A, "JCL Member BC1JRMCF," and Appendix B, "JCL Member BC1JRPKG," for sample JCL. Once you have successfully implemented this feature, please adjust these jobs to prevent them from reverting back to the non L-Serv attributes.

Note: Inadvertently reverting the SHR attributes back to SHR (3 3) with these files under L-Serv's control negates any performance improvements that you would expect to gain from this implementation.

Note to Endevor-Lib VSAM Users: When reorganizing (BC1PNLIB/BC1JNCPY) Endevor-Lib VSAM files that have been placed under the control of L-Serv, insure that the SHR options have been properly set to SHR (1 3) when the new target files of the copy are allocated.

1.10 Step 6: Maintaining Files Under the Control of L-Serv

Files under the control of L-Serv require slightly different procedures, and offer additional tools to aid in this process.

1.10.1 Compressing MCF and Package Datasets

In order to utilize the L-Serv Back-up/Compress/Archive feature for the MCF and Package datasets only, please insure the files have been previously reorganized as noted in the prior section. Once this has been completed, the LDMAMS utility can be used to accomplish this task. This is discussed in more detail in the *CA Common Services CA-L-Serv File Server Guide.*

1.10.2 Maintaining Endevor-Lib Datasets

When using the Endevor-Lib BC1PNLIB, BC1PNCPY, or BC1PNLST utilities against datasets under the control of L-Serv, please insure that DISP=SHR is specified in your JCL. Otherwise, a lock-out condition occurs.

Endevor-Lib datasets will still require the periodic execution of the BC1PNCPY utility to reorganize their directory structure. The LDMAMS utility cannot take the place of this process to reorganize these files. Executing a LDMAMS compress destroys the structure of the E-Lib files making them unusable.

1.10.3 Backing Up Files Under the Control of L-Serv

The Endevor UNLOAD/RELOAD can be used for backing-up your Endevor environments and entities. If you wish to use your own backup procedures, the options are:

1. Release the files from L-Serv's control (using the L-Serv REMOVEFILE command), do your backup and then place the files back under L-Serv using the ADDFILE command.
2. Use L-Serv's LDMAMS utility to perform backup of MCFs and Package files only (see the *CA Common Services CA-L-Serv File Server Guide* for more information).

1.11 Step 7: Monitoring L-Serv's Performance

The ongoing success of this feature requires periodic monitoring to achieve optimal performance. This will be required when:

- Any significant additional Endevor load is added (for example, adding Environments or Elements)
- Any significant Endevor dataset reconfiguration takes place (for example, splitting of Base/Deltas or changing from PDS to VSAM E-Lib).
- Any system hardware or software changes are made (for example, changing VTAM, CPU, or your operating system).

L-Serv provides many services to help you determine any modifications you may need to make. See the *CA Common Services CA-L-Serv File Server Guide* for more information.

1.11.1 Evaluating Buffer Pool Usage

To see how well your buffer pools are being used, you can issue the DISPLAY BUFFERPOOL and DISPLAY STATISTICS SERVICE commands.

1.11.2 Obtaining Communication Data Through the Trace Facility

This facility allows you to collect data on how clients are using the server and what types of data they are transmitting. It also provides diagnostic information about communication problems.

1.11.3 Displaying Information About the Communications Server

The DISPLAY command provides additional options to provide on-line information about the Communication Server's activity.

If you have any questions regarding this information, please contact your local Computer Associates Technical Support.

1.12 Documentation Overview

This manual is part of a comprehensive documentation set that fully describes the features and functions of Endevor and explains how to perform everyday tasks. For a complete list of Endevor manuals, see the PDF Table of Contents file in the PDF directory, or the Bookmanager Bookshelf file in the Books directory.

Appendix A. JCL Member BC1JRMCF

This appendix shows the JCL member BC1JRMCF, which is located in the iprfx.iqual.JCL library.

```
//*  ( COPY JOBCARD )
//*********************************************************************
//*                                                                   *
//*       THIS IS THE JCL MODEL FOR BC1JRMCF                          *
//*                                                                   *
//*    BC1JRMCF - THIS JOB WILL REBUILD THE VSAM MASTER CONTROL FILES *
//*               (MCF) USING THE IBM IDCAMS UTILITY.                 *
//*                                                                   *
//*       STEP1 WILL DELETE THE SEQUENCIAL FILES IN CASE OLD          *
//*             COPIES EXIST.                                         *
//*       STEP2 WILL REPRO THE EXISTING VSAM MASTER CONTROL FILES     *
//*             TO THE SEQUENCIAL FILES.                              *
//*      STEP3A WILL DELETE AND REDEFINE THE STAGE 1 VSAM CLUSTER.    *
//*      STEP3B WILL DELETE AND REDEFINE THE STAGE 1 VSAM CLUSTER FOR *
//*             L-SERV USERS ONLY.                                    *
//*      STEP4A WILL DELETE AND REDEFINE THE STAGE 2 VSAM CLUSTER.    *
//*      STEP4B WILL DELETE AND REDEFINE THE STAGE 2 VSAM CLUSTER FOR *
//*             L-SERV USERS ONLY.                                    *
//*       STEP5 WILL REPRO THE SEQUENCIAL FILES INTO THE NEW VSAM     *
//*             MASTER CONTROL FILES.                                 *
//*                                                                   *
//*  ************ NOTE TO NON L-SERV USERS ***************           *
//*                                                                   *
//*  IF YOU ARE NOT USING L-SERV TO MANAGE THE E/MVS MASTER CONTROL   *
//*  FILES AT THIS TIME, PLEASE INSURE THE FOLLOWING ADJUSTMENTS      *
//*  TO THIS JCL ARE MADE:                                      *
//*                                                                   *
//*  - DELETE STEPS 3B AND 4B.                                        *
//*  - ADJUST THE CONDITION CODES IN STEP 5 TO ONLY CHECK FOR STEPS   *
//*    3A AND 4A.                                                     *
//*  - EXECUTE STEPS 3A AND 4A TO ALLOCATE THE VSAM CLUSTER WITH THE  *
//*    PROPER ATTRIBUTES FOR NON L-SERV USERS.                        *
//*                                                                   *
```

```
//*  ************ NOTE TO L-SERV USERS ****************              *
//*                                                                 *
//*  IF YOU PLAN TO USE L-SERV TO MANAGE THE E/MVS MASTER           *
//*  CONTROL FILES, PLEASE INSURE THE FOLLOWING ADJUSTMENTS         *
//*  TO THIS JCL ARE MADE:                                    *
//*                                                                 *
//*  - PLEASE INSURE L-SERV IS PROPERLY INSTALLED                   *
//*  - DELETE STEPS 3A AND 4A.                                      *
//*  - ADJUST THE CONDITION CODES IN STEP 5 TO ONLY CHECK FOR STEPS *
//*    3B AND 4B.                                                   *
//*  - EXECUTE STEPS 3B AND 4B TO ALLOCATE THE VSAM CLUSTER WITH THE *
//*    PROPER ATTRIBUTES FOR L-SERV USERS ENABLING THE COMPRESS     *
//*    UTILITY TO BE USED.                                          *
//*                                                                 *
//*  NO OTHER ATTRIBUTES OF THESE FILES MAY BE ALTERED WITHOUT      *
//*  FIRST CONSULTING COMPUTER ASSOCIATES TECHNICAL SUPPORT.        *
//*                                                                 *
//*******************************************************************
//*                                                                 *
//*       STEP1 - DELETE THE SEQUENCIAL FILES IN CASE OLD           *
//*               COPIES EXIST.                                     *
//*                                                                 *
//*******************************************************************
//STEP1    EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
      DELETE 'uprfx.uqual.V1SEQ' PURGE
      DELETE 'uprfx.uqual.V2SEQ' PURGE
//*******************************************************************
//*                                                                 *
//*       STEP2 - REPRO THE EXISTING VSAM MASTER CONTROL FILES      *
//*               TO THE SEQUENCIAL FILES.                          *
//*                                                                 *
//*******************************************************************
//STEP2    EXEC PGM=IDCAMS
//TEMPSEQ1 DD DSN=uprfx.uqual.V1SEQ,DISP=(NEW,CATLG,DELETE),
//         UNIT=SYSDA,VOL=SER=dvolser,SPACE=(CYL,(10,5),RLSE),
//         DCB=(RECFM=VB,LRECL=1021,BLKSIZE=6160)
//TEMPSEQ2 DD DSN=uprfx.uqual.V2SEQ,DISP=(NEW,CATLG,DELETE),
//         UNIT=SYSDA,VOL=SER=dvolser,SPACE=(CYL,(10,5),RLSE),
//         DCB=(RECFM=VB,LRECL=1021,BLKSIZE=6160)
//CURSTG1  DD DSN=uprfx.uqual.STAGE1,DISP=OLD,
//            AMP='BUFNI=10,BUFND=10'
//CURSTG2  DD DSN=uprfx.uqual.STAGE2,DISP=OLD,
//            AMP='BUFNI=10,BUFND=10'
```

```
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  REPRO IFILE(CURSTG1) OFILE(TEMPSEQ1)
  REPRO IFILE(CURSTG2) OFILE(TEMPSEQ2)
//*********************************************************************
//*                                                                   *
//*       STEP3A - DELETE AND REDEFINE THE STAGE 1 VSAM CLUSTER.      *
//*                                                                   *
//*********************************************************************
//STEP3A    EXEC PGM=IDCAMS,COND=(0,LT,STEP2)
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 DELETE 'uprfx.uqual.STAGE1' PURGE
 DEFINE CLUSTER (NAME('uprfx.uqual.STAGE1') -
   IMBED -
   SPEED -
   UNIQUE -
   FREESPACE(30 30) -
   CYLINDERS(NN NN) -
   VOLUMES(vvolser) -
   RECORDSIZE(640 1017) KEYS(28 0) SHR(3 3)) -
  DATA  (NAME('uprfx.uqual.STAGE1.DATA') CISZ(8192)) -
  INDEX (NAME('uprfx.uqual.STAGE1.INDEX') CISZ(2048))
//*********************************************************************
//*                                                                   *
//*       ************** FOR L-SERV USERS ONLY ****************       *
//*                                                                   *
//*       STEP3B - DELETE AND REDEFINE THE STAGE 1 VSAM CLUSTER       *
//*                                                                   *
//*********************************************************************
//STEP3B    EXEC PGM=IDCAMS,COND=(0,LT,STEP2)
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 DELETE 'uprfx.uqual.STAGE1' PURGE
 DEFINE CLUSTER (NAME('uprfx.uqual.STAGE1') -
   NOIMBED -
   SPEED -
   SUBALLOCATION -
   REUSE -
   FREESPACE(30 30) -
   CYLINDERS(NN NN) -
   VOLUMES(vvolser) -
   RECORDSIZE(640 1017) KEYS(28 0) SHR(1 3)) -
```

```
  DATA  (NAME('uprfx.uqual.STAGE1.DATA') CISZ(8192)) -
  INDEX (NAME('uprfx.uqual.STAGE1.INDEX') CISZ(2048))
//*******************************************************************
//*                                                                 *
//*       ************ FOR NON L-SERV USERS ONLY **************       *
//*                                                                 *
//*       STEP4A - DELETE AND REDEFINE THE STAGE 2 VSAM CLUSTER.    *
//*                                                                 *
//*******************************************************************
//STEP4A   EXEC PGM=IDCAMS,COND=(0,LT,STEP2)
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 DELETE 'uprfx.uqual.STAGE2' PURGE
 DEFINE CLUSTER (NAME('uprfx.uqual.STAGE2') -
   IMBED -
   SPEED -
   UNIQUE -
   FREESPACE(30 30) -
   CYLINDERS(NN NN) -
   VOLUMES(vvolser) -
   RECORDSIZE(640 1017) KEYS(28 0) SHR(3 3)) -
  DATA  (NAME('uprfx.uqual.STAGE2.DATA') CISZ(8192)) -
  INDEX (NAME('uprfx.uqual.STAGE2.INDEX') CISZ(2048))
//*******************************************************************
//*                                                                 *
//*       ************** FOR L-SERV USERS ONLY ***************       *
//*                                                                 *
//*       STEP4B - DELETE AND REDEFINE THE STAGE 2 VSAM CLUSTER.    *
//*                                                                 *
//*******************************************************************
//STEP4B   EXEC PGM=IDCAMS,COND=(0,LT,STEP2)
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 DELETE 'uprfx.uqual.STAGE2' PURGE
 DEFINE CLUSTER (NAME('uprfx.uqual.STAGE2') -
   NOIMBED -
   SPEED -
   SUBALLOCATION -
   REUSE -
   FREESPACE(30 30) -
   CYLINDERS(NN NN) -
   VOLUMES(vvolser) -
```

```
   RECORDSIZE(640 1017) KEYS(28 0) SHR(1 3)) -
  DATA  (NAME('uprfx.uqual.STAGE2.DATA') CISZ(8192)) -
  INDEX (NAME('uprfx.uqual.STAGE2.INDEX') CISZ(2048))
//*********************************************************************
//*                                                                   *
//*       STEP5 - REPRO THE SEQUENCIAL FILES INTO THE NEW VSAM        *
//*               MASTER CONTROL FILES.                               *
//*                                                                   *
//*********************************************************************
//STEP5    EXEC PGM=IDCAMS,
//    COND=((0,LT,STEP3A),(0,LT,STEP3B),(0,LT,STEP4A),(0,LT,STEP4B))
//CURSEQ1  DD DSN=uprfx.uqual.V1SEQ,DISP=OLD
//CURSEQ2  DD DSN=uprfx.uqual.V2SEQ,DISP=OLD
//NEWSTG1  DD DSN=uprfx.uqual.STAGE1,DISP=OLD,
//            AMP='BUFNI=10,BUFND=10'
//NEWSTG2  DD DSN=uprfx.uqual.STAGE2,DISP=OLD,
//            AMP='BUFNI=10,BUFND=10'
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  REPRO IFILE(CURSEQ1) OFILE(NEWSTG1)
  REPRO IFILE(CURSEQ2) OFILE(NEWSTG2)
//*
```

Appendix B. JCL Member BC1JRPKG

This appendix shows the JCL member BC1JRPKG, which is located in the iprfx.iqual.JCL library.

```
//*  ( COPY JOBCARD )
//*********************************************************************
//*                                                                   *
//*       THIS IS THE JCL MODEL FOR BC1JPCKG                          *
//*                                                                   *
//*    BC1JRPKG - THIS JOB WILL REBUILD THE VSAM PACKAGE DATASET      *
//*               USING THE IBM IDCAMS UTILITY.                       *
//*                                                                   *
//*       STEP1 WILL DELETE THE SEQUENTIAL FILE IN CASE AN OLD        *
//*             COPY EXISTS.                                          *
//*       STEP2 WILL REPRO THE EXISTING VSAM PACKAGE DATASET          *
//*             TO THE SEQUENTIAL FILES.                              *
//*      STEP3A WILL DELETE AND REDEFINE THE VSAM PACKAGE DATASET.    *
//*      STEP3B WILL DELETE AND REDEFINE THE VSAM PACKAGE DATASET.    *
//*             FOR L-SERV USERS ONLY.                                *
//*       STEP4 WILL REPRO THE SEQUENTIAL FILE INTO THE NEW VSAM      *
//*             PACKAGE DATASET.                                      *
//*                                                                   *
//*  ************ NOTE TO NON L-SERV USERS ***************           *
//*                                                                   *
//*  IF YOU ARE NOT USING L-SERV TO MANAGE THE E/MVS PACKAGE DATASET  *
//*  AT THIS TIME, PLEASE INSURE THE FOLLOWING ADJUSTMENTS TO         *
//*  THIS JCL ARE MADE:                                        *
//*                                                                   *
//*  - DELETE STEP 3B.                                                *
//*  - ADJUST THE CONDITION CODES IN STEP 4 TO ONLY CHECK FOR STEP    *
//*    3A.                                                            *
//*  - EXECUTE STEP 3A TO ALLOCATE THE VSAM CLUSTER WITH THE          *
//*    PROPER ATTRIBUTES FOR NON L-SERV USERS.                        *
```

```
//*  ************ NOTE TO L-SERV USERS ****************                *
//*                                                                      *
//*  IF YOU PLAN TO USE L-SERV TO MANAGE THE E/MVS PACKAGE               *
//*  DATASET, PLEASE INSURE THE FOLLOWING ADJUSTMENTS                    *
//*  TO THIS JCL ARE MADE:                                        *
//*                                                                      *
//*  - PLEASE INSURE L-SERV IS PROPERLY INSTALLED                        *
//*  - DELETE STEP 3A.                                                   *
//*  - ADJUST THE CONDITION CODES IN STEP 4 TO ONLY CHECK FOR STEP       *
//*    3B.                                                               *
//*  - EXECUTE STEP 3B TO ALLOCATE THE VSAM CLUSTER WITH THE             *
//*    PROPER ATTRIBUTES FOR L-SERV USERS ENABLING THE COMPRESS          *
//*    UTILITY TO BE USED.                                               *
//*                                                                      *
//*  NO OTHER ATTRIBUTES OF THESE FILES MAY BE ALTERED WITHOUT           *
//*  FIRST CONSULTING COMPUTER ASSOCIATES TECHNICAL SUPPORT.             *
//*                                                                      *
//**********************************************************************
//**********************************************************************
//*                                                                      *
//*       STEP1 - DELETE THE SEQUENTIAL FILE IN CASE AN OLD              *
//*               COPY EXISTS.                                          *
//*                                                                      *
//**********************************************************************
//STEP1    EXEC PGM=IDCAMS
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
      DELETE 'uprfx.uqual.V1PKG' PURGE
//**********************************************************************
//*                                                                      *
//*       STEP2 - REPRO THE EXISTING VSAM PACKAGE DATASET                *
//*               TO THE SEQUENTIAL FILES.                               *
//*                                                                      *
//**********************************************************************
//STEP2    EXEC PGM=IDCAMS
//TEMPPKG  DD DSN=uprfx.uqual.V1PKG,DISP=(NEW,CATLG,DELETE),
//         UNIT=SYSDA,VOL=SER=dvolser,SPACE=(CYL,(10,5),RLSE),
//         DCB=(RECFM=VB,LRECL=1021,BLKSIZE=6160)
//CURPKG   DD DSN=uprfx.uqual.PACKAGE,DISP=OLD,
//            AMP='BUFNI=10,BUFND=10'
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  REPRO IFILE(CURPKG) OFILE(TEMPPKG)
//**********************************************************************
//*                                                                      *
//*       STEP3A - DELETE AND REDEFINE THE VSAM PACKAGE DATASET.         *
//*                                                                      *
//**********************************************************************
```

```
//STEP3A   EXEC PGM=IDCAMS,COND=(0,LT,STEP2)
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 DELETE 'uprfx.uqual.PACKAGE' PURGE
 DEFINE CLUSTER (NAME('uprfx.uqual.PACKAGE') -
   IMBED -
   SPEED -
   UNIQUE -
   FREESPACE(30 30) -
   CYLINDERS(NN NN) -
   VOLUMES(vvolser) -
   RECORDSIZE(640 1017) KEYS(64 8) SHR(3 3)) -
  DATA  (NAME('uprfx.uqual.PACKAGE.DATA') CISZ(8192)) -
  INDEX (NAME('uprfx.uqual.PACKAGE.INDEX') CISZ(2048))
//*********************************************************************
//*                                                                   *
//*       ************* FOR L-SERV USERS ONLY ***************        *
//*                                                                   *
//*       STEP3B - DELETE AND REDEFINE THE VSAM PACKAGE DATASET.      *
//*                                                                   *
//*********************************************************************
//STEP3B   EXEC PGM=IDCAMS,COND=(0,LT,STEP2)
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
 DELETE 'uprfx.uqual.PACKAGE' PURGE
 DEFINE CLUSTER (NAME('uprfx.uqual.PACKAGE') -
   NOIMBED -
   SPEED -
   SUBALLOCATION -
   REUSE -
   FREESPACE(30 30) -
   CYLINDERS(NN NN) -
   VOLUMES(vvolser) -
   RECORDSIZE(640 1017) KEYS(64 8) SHR(1 3)) -
  DATA  (NAME('uprfx.uqual.PACKAGE.DATA') CISZ(8192)) -
  INDEX (NAME('uprfx.uqual.PACKAGE.INDEX') CISZ(2048))
//*********************************************************************
//*                                                                   *
//*       STEP4 - REPRO THE SEQUENTIAL FILE INTO THE NEW VSAM         *
//*               PACKAGE DATASET.                                    *
//*                                                                   *
//*********************************************************************
//STEP4    EXEC PGM=IDCAMS,COND=((0,LT,STEP3A),(0,LT,STEP3B))
//CURPKG   DD DSN=uprfx.uqual.V1PKG,DISP=OLD
//NEWPKG   DD DSN=uprfx.uqual.PACKAGE,DISP=OLD,
//            AMP='BUFNI=10,BUFND=10'
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  REPRO IFILE(CURPKG) OFILE(NEWPKG)
//*
```